DIVISION 6
STRUCTURES

6-01 GENERAL REQUIREMENTS FOR STRUCTURES

6-01.1 Description

This section relates to structural and incidental items used in any or all types of existing or proposed Structures. These provisions supplement the detailed Specifications supplied for any given Structure. These provisions apply only when relevant and when they do not conflict with the Plans or Special Provisions.

6-01.2 Foundation Data

Foundation data in the Plans (from test borings, test pits, or other sources) were obtained only to guide the Department in planning and designing the project. These data reasonably represent the best information available to the Department concerning conditions and materials at the test sites at the time the investigations were made.

6-01.3 Clearing the Site

The Contractor shall clear the entire site of the proposed Structure to the limits staked by the Engineer.

6-01.4 Appearance of Structures

To achieve a more pleasing appearance, the Engineer may require the Contractor to adjust the height and alignment of bridge railings, traffic barrier, and structural curbs.

6-01.5 Vacant

6-01.6 Load Restrictions on Bridges Under Construction

Bridges under construction shall remain closed to all traffic, including construction equipment, until the Substructure and the Superstructure, through the roadway deck, are complete for the entire Structure, except as provided herein. Completion includes release of all falsework, removal of all forms, and attainment of the minimum design concrete strength and specified age of the concrete in accordance with these Specifications. Once the Structure is complete, Section 1-07.7 shall govern all traffic loading, including construction traffic (equipment).

If necessary and safe to do so, and if the Contractor requests it in writing, the Engineer may approve traffic on a bridge prior to completion. The maximum distributed load at each construction equipment support shall not exceed the design load by more than 33-percent. The written request shall:

1. Describe the extent of the Structure completion at time of the proposed equipment loading;
2. Describe the loading magnitude, arrangement, movement, and position of traffic (equipment) on the bridge, including but not limited to the following:
    a. Location of construction equipment, including outriggers, spreader beams and supports for each, relative to the bridge framing plan (bridge girder layout);
    b. Mechanism of all load transfer (load path) to the bridge;

3. Provide stress calculations under the design criteria specified in the AASHTO Standard Specifications for Highway Bridges, current edition, prepared by (or under the direction of) a professional engineer, licensed under Title 18 RCW state of Washington, and carrying the professional engineer's signature and seal, including but not limited to the following:
   a. Supporting calculations showing that the flexural and shear stresses in the main load carrying members due to the construction load are within the allowable stresses;
   b Supporting calculations showing that the flexural and shear stresses in the bridge deck due to the construction load are within the allowable stresses;
4. Provide supporting material properties, catalogue cuts, and other information describing the construction equipment and all associated outriggers, spreader beams, and supports; and,
5. State that the Contractor assumes all risk for damage.

6-01.7 Navigable Streams

The Contractor shall keep navigable streams clear so that water traffic may pass safely, providing and maintaining all lights and signals required by the U.S. Coast Guard. The Contractor shall also comply with all channel depth and clearance line requirements of the U.S. Corps of Engineers. This may require removing material deposited in the channel during construction.

6-01.8 Approaches to Movable Spans

No roadway or sidewalk slab on the approach span at either end of a movable span may be placed until after the movable span has been completed, adjusted and closed.

6-01.9 Working Drawings

The Contractor shall submit supplemental Working Drawings with calculations as required for the performance of the Work. The drawings shall be on sheets measuring 22 by 34-inches, 11 by 17-inches, or on sheets with dimensions in multiples of 8½ by 11-inches. All drawings shall be to scale in keeping with standard drafting procedures. The design calculations shall be on sheets measuring 8½ by 11-inches. They shall be legible, with all terms identified, and may include computer printouts. The drawings and calculations shall be provided far enough in advance of actual need to allow for the review process by the Contracting Agency, which may involve rejection, revision, or resubmittal. Unless otherwise stated in the Contract, the Engineer will require up to 30-calendar days from the date the submittals are received until they are sent to the Contractor. This time will increase if the drawings submitted do not meet the Contract requirements or contain insufficient details.

Unless designated otherwise by the Contractor, submittals of Working Drawing plans will be reviewed in the order they are received by the Engineer. In the event that several Working Drawing plans are submitted simultaneously, the Contractor shall specify the sequence in which these plans are to be reviewed. The Engineer's review time shall be as specified above for the first plan in the specified sequence and up to an additional 2-weeks for each plan lower in the specified sequence. A plan is defined as 1 or more Working Drawings that pertain to a unit of Superstructure or a complete pier. If the Contractor does not submit a Working Drawing review sequence for simultaneous plan submittals, the review sequence shall be at the Engineer's discretion.

Working drawings and calculations shall be prepared by (or under the direction of) a Professional Engineer, licensed under Title 18 RCW, State of Washington, and shall carry the Professional Engineer's signature and seal.

If more than the specified number of days are required for the Engineer's review of any individual submittal or resubmittal, an extension of time will be considered in accordance with Section 1-08.8.

6-01.10 Utilities Supported by or Attached to Bridges

Installation of utility pipes and conduit systems shall conform to the details shown in the Plans and as specified in the utility agreement between the utility company and the Contracting Agency.

All utility pipes and conduit systems supported by or attached to bridge Structures shall be labeled with Type I reflective sheeting conforming to Section 9-28.12, and the following:

Content	Label Background Color	Lettering Utility Color
Electrical Power	Red	Black
Gas, Oil, Steam, Petroleum, and other gaseous materials	Yellow	Black
CATV, Telecommunication, Alarm, and Signal	Orange	Black
Potable Water	Blue	White
Reclaimed Water,Irrigation, Slurry	Purple	White
Sewer and Storm Drain	Green	White

The purple color background for the label for reclaimed water, irrigation, and slurry, shall be generated by placing transparent film over white reflective material. The purple tint of the transparent film shall match Federal Standard Color 595B No. 37100. Color chips are available from the source specified in Section 9-08.4(7).

The label text shall identify the utility contents and include the One-Number Locator Service phone number 1-800-424-5555.

The minimum length of the label color field shall be the longer of either 1 letter width beyond each end of the label text, or the length specified below:

Minimum Pipe O.D. (inches)	Maximum Pipe O.D. (inches)	Minimum Length of Label Color Field (inches)	Letter Height (inches)
¾	1¼	8	½
1½	2	8	¾
2½	6	12	1¼
8	10	24	2½
12	—	32	3½

Utility pipes and conduit systems shall be labeled on both sides of each bridge pier, and adjacent to each entrance hatch into a box girder cell. For utility pipes and conduit systems within bridge spans exceeding 300-feet, labels shall also be applied to the utility pipes and conduit systems between the piers at a maximum spacing of 300-feet. The label shall be visible at a normal eye height.

6-01.11 Name Plates

The Contractor shall install no permanent plates or markers on a Structure unless the Plans show it.

6-01.12 Final Cleanup

When the Structure is completed, the Contractor shall leave it and the entire site in a clean and orderly condition. Structure decks shall be swept and washed. Temporary buildings, falsework, piling, lumber, equipment, and debris shall be removed. The Contractor shall level and fine grade all excavated material not used for backfill, and shall fine grade all slopes and around all piers, bents, and abutments.

The Contractor is advised that after the Structure is complete, a representative(s) of the WSDOT Bridge Preservation Office may perform an Inventory Inspection of the Structure. The purpose of the Inventory Inspection is to field verify certain Contract details, to provide a base-line condition assessment of the Structure, and to identify any potential maintenance features.

6-01.13 Architectural Features

To ensure uniform texture and color, the Contractor shall obtain all cement for the Structure from the same manufacturing plant unless the Engineer waives this requirement in writing.

6-01.14 Premolded Joint Filler

When the Plans call for premolded joint filler, the Contractor shall fasten it with galvanized wire nails to 1 side of the joint. The nails must be no more than 6-inches apart and shall be 1½-inches from the edges over the entire joint area. The nails shall be at least 1½-inches longer than the thickness of the filler.

The Contractor may substitute for the nails any adhesive approved by the Engineer. This adhesive, however, shall be compatible with Resilient Bituminous Preformed Expansion Joint Filler (ASTM D 1751) and capable of bonding the filler to Portland cement concrete.

6-01.15 Normal Temperature

Bridge Plans state dimensions at a normal temperature of 64ºF. Unless otherwise noted, these dimensions are horizontal or vertical.